

DISTICHOGORGIA SCONSA, A NEW GENUS AND
SPECIES OF CHRYSOGORGIID OCTOCORAL
(COELENTERATA: ANTHOZOA) FROM
THE BLAKE PLATEAU OFF
NORTHERN FLORIDA

Frederick M. Bayer

Abstract.—*Distichogorgia sconsa*, a new genus and species of chrysogorgiid octocoral from the Blake Plateau off Northern Florida is described and is figured by means of drawings and scanning electron micrographs. The genus and species are compared with those genera and species to which they are most similar, and the genus is incorporated in a new key to genera of the family Chrysogorgiidae.

In the course of revisionary investigations of the octocoral fauna of the western Atlantic, based on the extensive collections obtained by the research vessels *Gerda*, *Gilliss*, *Columbus Iselin*, and *John Elliott Pillsbury* of the University of Miami, together with older collections in the National Museum of Natural History, Smithsonian Institution, many novelties have come to light. Although most of these will be published in the revisionary work proper, some are of sufficient interest to warrant publication in advance of the larger work in order to bring them to the attention of interested investigators who may be in a position to increase our knowledge of them. Among these is a chrysogorgiid apparently allied to the genus *Radicipes* Stearns but so different that it cannot be accommodated within that genus. I now present the following description of this new genus and species in the hope that additional records of it will be forthcoming before the general revision of the family Chrysogorgiidae is published.

Family Chrysogorgiidae Verrill, 1883

Distichogorgia, new genus

Diagnosis.—Unbranched, flagelliform chrysogorgiids with biserial polyps forming bluntly conical calyces directed obliquely upward. Sclerites exclusively flat scales with entire margins and devoid of tuberculate or spinous macrosculpture; distal body sclerites not differentiated as an operculum.

Type-species.—*Distichogorgia sconsa* n. sp., here designated.

Comparisons.—This genus differs from *Radicipes* Stearns in having biserial polyps and sclerites exclusively in the form of scales, and from *Chalcogorgia* Bayer in lacking specially differentiated opercular scales.

The new genus *Distichogorgia* may be distinguished from the other gen-

era at present known in the family Chrysogorgiidae according to the following key.

1. Colonies unbranched 2
 - Colonies branched 4
2. Polyps placed uniserially along stem *Radicipes* Stearns
 - Polyps placed biserially along stem 3
3. Distal body scales of polyps forming a distinctly differentiated operculum consisting of 8 triangular scales; abaxial body scales transverse *Chalcogorgia* Bayer
 - Distal body scales of polyps not forming an operculum; abaxial body scales longitudinal *Distichogorgia* n. gen.
4. Colonies with terminal branches long, slender and whiplike, originating directly from main stem or after a few bifurcations of primary branches 5
 - Colonies with terminal branches short, the last of several bifurcations of primary branches 7
5. Terminal branches simple, arising around outside of spirally coiled main stem; colonies not flabellate *Iridogorgia* Verrill
 - Terminal branches originating in one plane, colonies more or less distinctly lyrate 6
6. Terminal branches slender and flexible. Sclerites exclusively in form of small scales, or altogether absent *Trichogorgia* Hickson
 - Terminal branches stiff, more or less brittle. In addition to thin scales, sclerites include thick plates with closely set, stout, rounded projections on outer surface *Pleurogorgia* Versluys
7. Colonies branched in one plane 8
 - Colonies not branched in one plane 9
8. Branching profuse, pinnate, producing flabellate or plumose colonies. Polyps small, coenenchyme extremely thin, sclerites small (up to 0.15 mm in length) *Stephanogorgia* Bayer & Muzik
 - Branching sparse, lateral or openly pinnate, producing loose, open colonies. Polyps large, coenenchyme thick, sclerites large (up to 0.45 mm in length) *Isidoidea* Nutting
9. Branches irregularly subdivided, originating on all sides of main stem but not arranged in a spiral around it, forming colonies of dense bottle-brush shape. Axis very weakly calcified, without iridescence *Xenogorgia* Bayer & Muzik
 - Branches dichotomously subdivided, originating either sympodially in a spiral around main stem or monopodially from top of a tall, upright trunk. Axis strongly calcified, with conspicuous metallic iridescence especially in younger parts 10
10. Colonies sympodial, dichotomously subdivided lateral branches originating in a spiral around main stem. Axis commonly with bril-

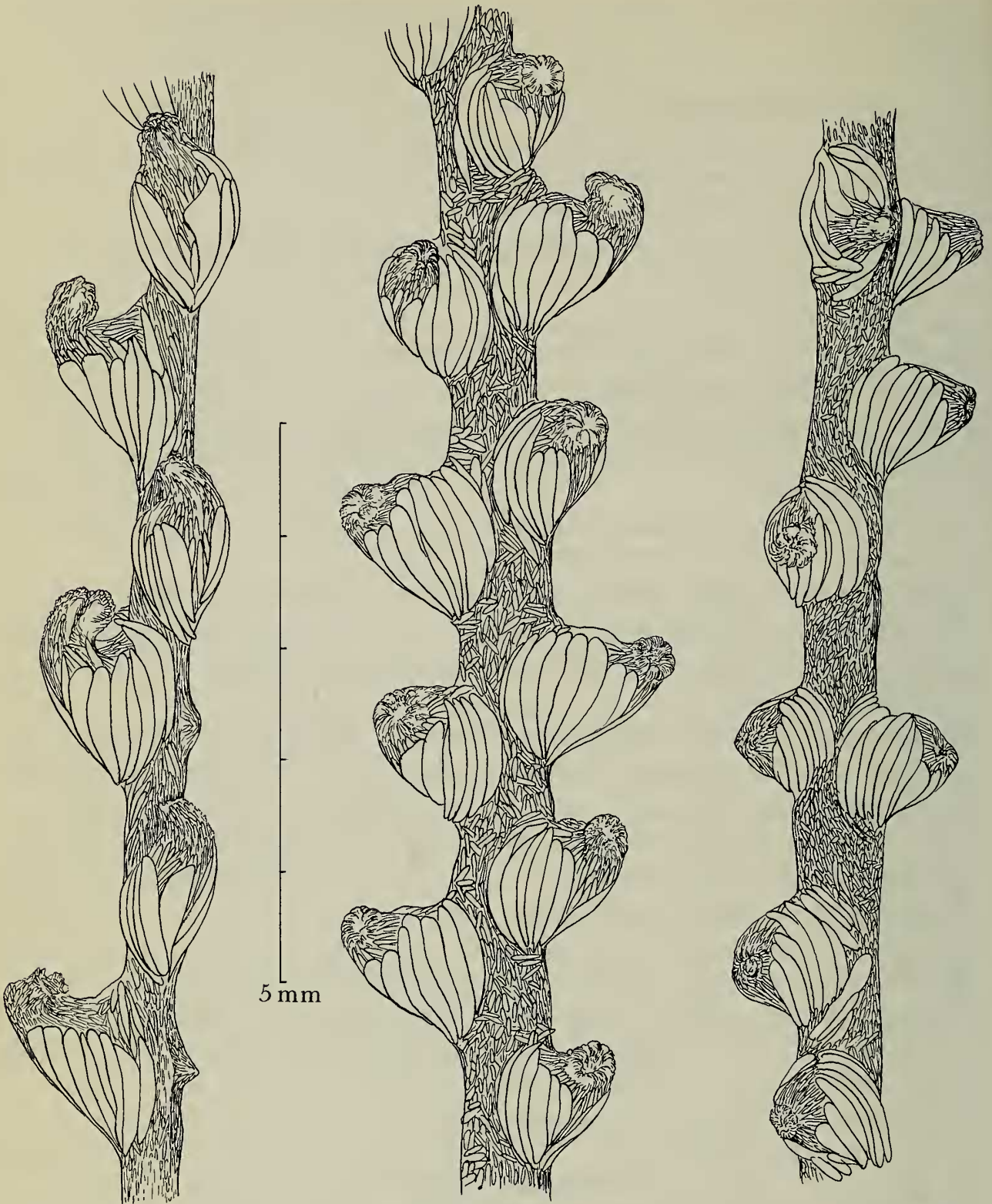


Fig. 1 *Distichogorgia sconsa*; calyces from distal (left), middle (center), and proximal (right) part of holotype, USNM 58444.

- liant iridescence extending even on main stem
- *Chrysogorgia* Duchassaing & Michelotti
- Colonies monopodial, dichotomously subdivided branches arising from top of a tall, upright main trunk. Axis of branches with strong metallic sheen, of branches almost black, glossy
- *Metallogorgia* Versluys

Distichogorgia sconsa, new species

Figs. 1; 2a, d–g; 3

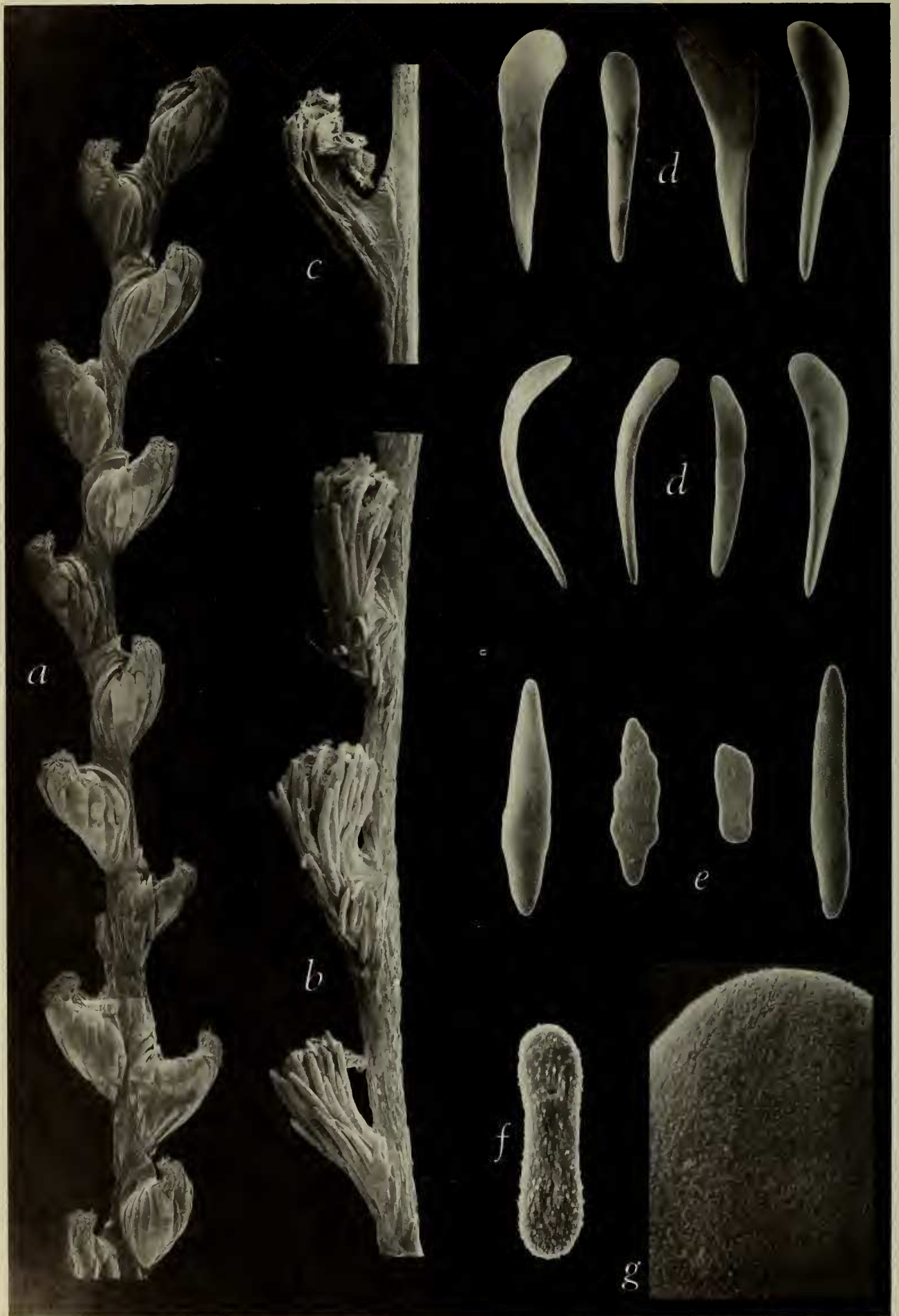
Material.—One colony. Blake Plateau, off Fernandina, Florida: 30°53'N, 78°47'W, 814 m (445 fathoms), *Atlantis* sta. A-266-40, 13 July 1961. Holotype.

Diagnosis.—Body of polyps covered on each side by an obliquely fan-shaped array of 6–8 large, barely overlapping bladelike scales, proximalmost of which lie longitudinally along abaxial side of polyp, progressively shorter following ones becoming increasingly oblique until they encircle base of polyp; smaller, elongate scales fill adaxial and abaxial parts of body wall where not covered by large scales; tentacles with numerous, closely crowded, small scales.

Description.—The distal half of the unbranched, flagelliform stem is curved so as to form a nearly closed circle, possibly an artifact resulting from long preservation in a cylindrical container but more likely natural, in view of the openly spiral growth form reported for species of *Radicipes*, e.g., *R. spiralis* (Nutting), *R. aureus* Kukenthal, and *R. squamiferus* Kükenthal. The stem bears polyps biserially and inclined toward one side but not aligned perfectly in the vertical direction. Distally, the polyps in each row are separated by roughly their own greatest basal diameter, and those of the right side alternate with those of the left so that the base of a polyp on the right nearly touches the base of the next polyp below, which is on the left, and so on down the stem (Figs. 1, 2a). They become more crowded proximad, apparently by the insertion of young polyps between older ones. This closer crowding also brings the polyps of opposite rows more nearly into horizontal alignment, in some cases resulting in distinct transverse pairs.

The contracted polyps form bluntly conical calyces upturned about 45° and having on the abaxial (i.e., lower) side a supporting plate composed of 2 obliquely fan-shaped groups of smooth, translucent scales, one on either side and meeting along the abaxial midline (Fig. 3). The sclerites are tapered, narrow at the proximal end and broader and more or less spatulate at the distal end (Fig. 2d), diverging from the base of the polyp near its abaxial side and conforming to the contour of the body. The abaxial side of the polyp between the two supporting fans contains several smaller, rather pointed scales (Fig. 2e) and the adaxial (i.e., upper) side is filled with small, rather narrow and blunt scales. The tentacles, of which all 8 appear to be well-developed, are folded over the oral disk and are filled with small, terminally rounded scales (Fig. 2f). The surface of the scales is sparsely ornamented with minute granulations, rather sharp and prominent on the small ones (Fig. 2f), finer and less conspicuous on the large ones (Fig. 2g).

The fully developed calyces are about 1 mm tall and 1 mm in greatest diameter; toward the base of the colony they diminish in size and become



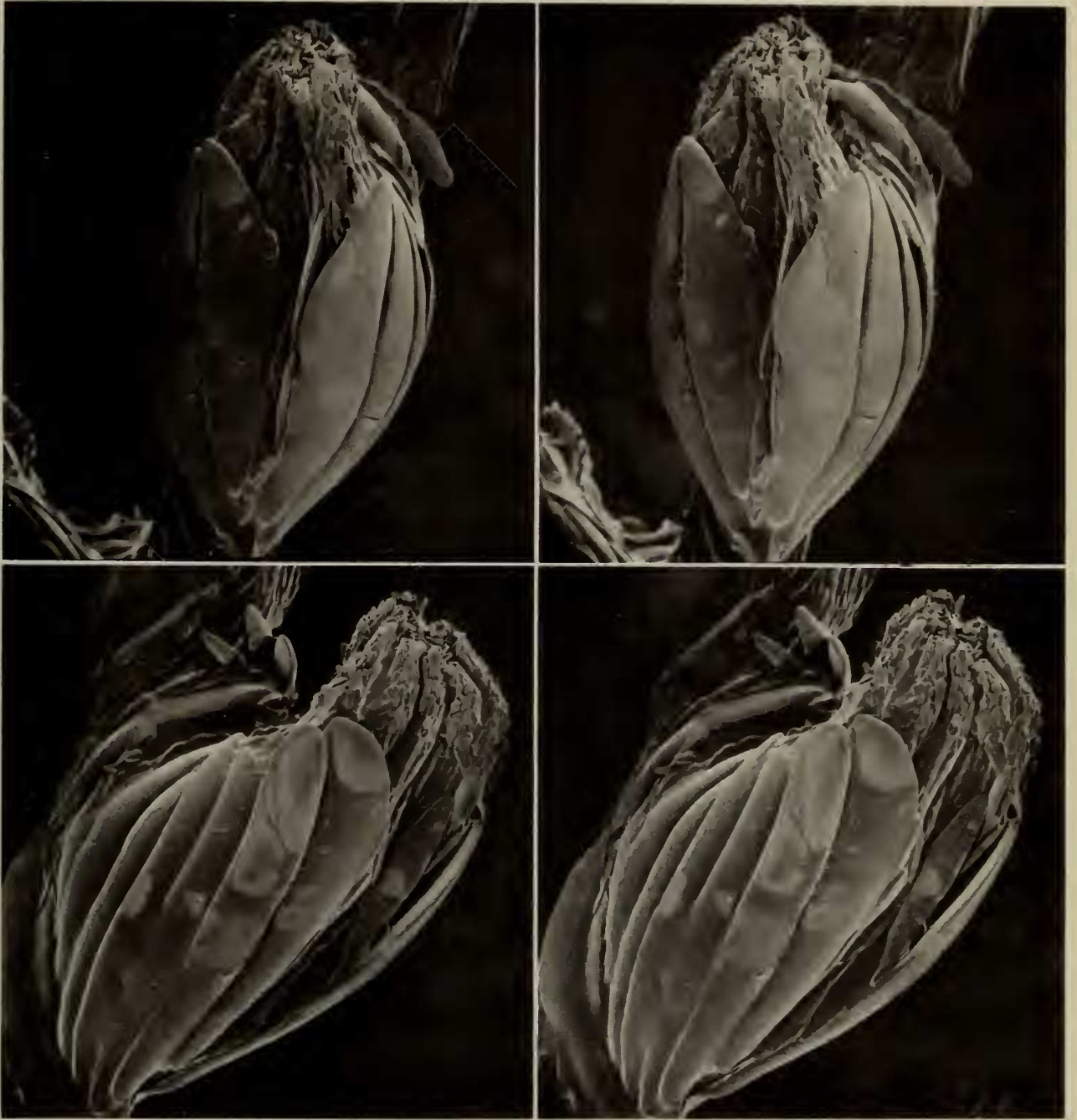


Fig. 3. *Distichogorgia sconsa*; abaxial and oblique views of single calyx from near apex of holotype ($\times 40$). Stereoscopic pairs.

blunt, slightly tapered cylinders projecting at roughly 90° (Fig. 1). Between the calyces, the surface of the coenenchyme is somewhat irregular owing to the layer of scales much smaller in size than the supporting scales of the polyps.

←

Fig. 2. **a**, *Distichogorgia sconsa*; calyces ($\times 10$) from distal part of holotype, USNM 58444; **b**, *Radicipes pleurocristatus* Stearns; calyces ($\times 8$) from distal part of colony from *Albatross* sta. 4969, USNM 49464; **c**, *Radicipes gracilis* (Verrill); calyces ($\times 7$) from distal part of syntype from *Albatross* sta. 2037, USNM 8877; **d–g**, *Distichogorgia sconsa*; **d**, supporting scales from calyces ($\times 24$); **e**, smaller interstitial scales from calyces ($\times 120$); **f**, small scale from tentacle ($\times 400$); **g**, detail of sculpture of large supporting scale ($\times 400$).

Holotype.—USNM 58444. Length 255 mm excluding holdfast, which was broken off during collection. Diameter of axis just above base, 0.8 mm; about 2 cm from apex, slightly less than 0.2 mm. Color of colony cream white; sclerites colorless, translucent; axis almost white distally, becoming pale straw-colored with moderate metallic iridescence proximally. Holdfast unknown.

Comparisons.—Apart from having their polyps in a single row, all known species of *Radicipes* except *R. squamiferus* Kükenthal from East Africa have rodlike or fusiform sclerites in the polyps. Examples are the type-species, *R. pleurocristatus* Stearns (Fig. 2b) from Japan, and *R. gracilis* (Verrill) (Fig. 2c) from the western Atlantic. *R. squamiferus* differs from *Distichogorgia sconsa* in having the scales of the polyps transversely set, not arranged as a bracketlike support, and furnished with conspicuous marginal serrations. *Chalcogorgia pellucida* Bayer from the Straits of Florida has biserial polyps with smooth, glassy scales, but the sclerites are of conspicuously different shape and transversely placed, and the polyps are closed apically by distinctly differentiated opercular scales (Bayer, 1949:239, fig. 1; 1956:F216, Fig. 155, 1a–f).

Acknowledgments

I am very grateful to Mr. W. R. Brown, chief of the S.E.M. Laboratory of the National Museum of Natural History, Smithsonian Institution, who made the scanning electron micrographs of polyps with a Cambridge Stereoscan model S4-10 and those of sclerites with a Coates & Welter Cwikscan model 106. Dr. Thomas E. Bowman and Dr. Marian H. Pettibone offered helpful suggestions, for which I extend sincere thanks. This research was supported in part by NSF grant B MS75-07193 to the University of Miami, Frederick M. Bayer, Adjunct Professor, Rosenstiel School of Marine and Atmospheric Science, Principal Investigator.

Literature Cited

- Bayer, Frederick M. 1949. Chalcogorgiinae, a new subfamily of Chrysogorgiidae (Coelenterata: Alcyonaria), and a description of *Chalcogorgia pellucida*, new genus and new species, from the Straits of Florida.—*Journal of the Washington Academy of Sciences* 39(7):237–240, fig. 1.
- . 1956. Octocorallia.—In: Moore, R. C. (Ed.), *Treatise on Invertebrate Paleontology*. Part F. Coelenterata. Pp. F163–F231, figs. 134–162. Geological Society of America and University of Kansas Press.

Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.